Knittel, Janette

From: Hale, Elly
Sent: Friday, November 01, 2019 10:55 AM
To: Knittel, Janette; Rick Thomas (RITH461@ECY.WA.GOV)
Cc: Hoffman, Erika
Subject: FW: Proposed Work CERCLA Area (Coordination NWS-2018-1001)
Attachments: PN 2018-1001 final.docx; Boeing_DC_Thompson_JARPA_dwg_2019_0927.pdf; Boeing_DC_Thompson_JARPA_app_2019_0621_signed.pdf

Hi, Rick and Tamara (and Janette)

This Boeing proposed shoreline stabilization work came up a while back and has been modified somewhat based on initial feedback. I'd like to coordinate with you before we comment.

I spoke to Boeing's LDWG reps (Joe and Lindsay) and they plan to talk to LDWG about this soon. LDWG will be interested, as one element is right next to the carbon pilot and all may be in contaminated areas or areas where design data will be/should be collected. I told Joe and Lindsay that we would probably ask them to provide more context about the areas they propose to do work in, so we can provide appropriate input. It may make sense to phase the work, to coordinate with Year 3 monitoring and PDI sampling.

The work areas are also next to some upland properties undergoing MTCA and/or RCRA studies and cleanups. It makes sense to integrate the work where possible. In particular, the work proposed (I think) where the old Slip 5 was filled probably needs to be characterized, and if the remedy involved removal of fill, maybe they could get habitat benefits. They said that the Slip 5 area is needed for adequate turning radius for planes to enter and leave the hangar--but that other areas are being used for parking.

So for ECY, I'm thinking we need to discuss MTCA sites, what is known and what is planned, as well as any other source control input you might have (e.g. around the outfalls that will be modified). Other ECY stuff may come up.

Elly Hale
US Environmental Protection Agency R10
1200 Sixth Avenue, Suite 155, M/S 12-D12-1 Seattle, Washington 98101-3188
(206) 553-1215
hale.elly@epa.gov

-----Original Message-----
From: Hoffman, Erika <Hoffman.Erika@epa.gov>
Sent: Wednesday, October 30, 2019 2:55 PM
To: Hale, Elly <Hale.Elly@epa.gov>
Cc: Rave-Perkins, Krista <Rave-Perkins.Krista@epa.gov>
Subject: FW: Proposed Work CERCLA Area (Coordination NWS-2018-1001)

And I should mention that I went to a pre-app meeting on this project back in May 2018 as well as a site visit in June of that same year. Krista Rave-Perkins came to both the site visit and the pre-app meeting. I'm cc'ing her on this message to bring her into the loop.

Upshot of our comments to them at that time was that the entire design needed to be "softened" to include more habitat components and less riprap. The entire focus of the original design was minimizing scour and improving bank stability with pretty much no thought of juvenile/adult salmon or habitat.

Erika

<<<>>>><<<>>>><<<>>>><<<>>>><<<>>>><<<>>>><<<>>>><<<>>>><<<>>>><<<>>>><<<>>>><<<>>>>>>
Erika Hoffman | Biologist |U.S. Environmental Protection Agency Washington Operations Office | 300 Desmond Drive, Suite 102| Lacey, WA 98503 | 360.753.9540 |

-----Original Message-----
From: Lee, Rory W CIV USARMY CENWS (USA) <Rory.W.Lee@usace.army.mil>
Sent: Wednesday, October 23, 2019 9:37 AM
To: Hoffman, Erika <Hoffman.Erika@epa.gov>
Subject: Proposed Work CERCLA Area (Coordination NWS-2018-1001)

Good morning Erika,

Reference: NWS-2018-1001, Boeing DC Thompson (Bank Stabilization)

Location: In Duwamish River at Seattle, Washington.

Project Description: The Boeing Company proposes bank stabilization improvements at their industrial facility. Bank stabilization improvements below the ordinary high water mark (OHWM) include replacement of 340 linear feet of timber pile bulkhead with rip-rap, installation of anchored logs, repairs to seven timber pile dikes and placement of 900 linear feet of new rip-rap. Additional work would include removal of two track docks, concrete slab, and repairs to existing outfalls.

The purpose of the project is to protect Boeing's existing infrastructure.

Additional Information: Please see draft public notice and JARPA (attached)

Please let me know if you have any questions,

Rory W. Lee
Project Manager Biologist, Regulatory Branch Seattle District, USACE
(206) 316-3360

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

US Army Corps of Engineers
Seattle District

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Boeing Developmental Center and Thompson Site Duwamish Riverbank Refurbishment

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Martin Probst			
2b. Organization (If applicable)			
The Boeing Company, Facilities and Asset Management			
2c. Mailing Address (Street or PO Box)			
PO Box 3707, MC 46-208			
2d. City, State, Zip			
Seattle, WA 98124-2207			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
206-852-4985		253-657-4659	Martin.R.Probst@Boeing.com

[1]Additional forms may be required for the following permits:

- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- If your project might affect species listed under the Endangered Species Act, you will need to fill out a Specific Project Information Form (SPIF) or prepare a Biological Evaluation. Forms can be found at http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook/EndangeredSpecies.aspx.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Stoneman, Scott			
3b. Organization (If applicable)			
Golder Associates Inc.			
3c. Mailing Address (Street or PO Box)			
18300 NE Union Hill Road, Suite 200			
3d. City, State, Zip			
Redmond, WA 98052			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
206-316-5663	425-505-3952		sstoneman@golder.com

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☒ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☒ Private
☐ Federal
☐ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

Developmental Center: 9725 E Marginal Way S
Thompson Site: 8701 E Marginal Way S

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Tukwila, WA 98108

5d. County [help]

King

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
NW and NE SW and SE	4 33	23 24	4 (DC) 04 (Thompson and Slip 6)

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

Developmental Center: 47.51277 N Lat / -122.30166 W Long
Thompson Site: 47.52333 N Lat / -122.30722 W Long

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

Developmental Center: 5624201038, 5624201032, 5624200990, & 0003400018
Thompson Site: 0007400033

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
Insurance Auto Auctions (CenterPoint)	8801 East Marginal Way Seattle WA 98108	5422600060
Container Properties LLC	P O Box 1043 Kent WA 98035	5422600010
Container Properties LLC All other adjacent properties are owned by Boeing		

5i. List all wetlands on or adjacent to the project location. [help]

N.A.

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

Lower Duwamish Waterway

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know

The proposed riverbank refurbishment at both the Developmental Center and Thompson Site include work (excavation and fill) within the OHWM, which is within the 100-year floodplain.

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

Terrestrial and riparian habitats are limited within the project area. Terrestrial habitat, defined as areas landward of the top of bank, within the project area consist largely of industrial areas, landscaped areas, and patches of native vegetation growing toward the top of the bank along riprapped areas. Impervious surfaces cover much of the upland portion of the project area.

Riparian habitat, defined as the zone between MHHW and the top of bank, within the project area contains patches of riparian vegetation. Fringe areas between the MHHW mark and the top of bank that are adjacent to impervious surfaces include scattered patches of trees, grasses, and weedy forbs. The majority of the shoreline is hardened with riprap or bulkheads. In several areas, riprap and other miscellaneous debris extends below the MHHW elevations, affecting intertidal habitat quality.

5m. Describe how the property is currently used. [help]

Commercial property of The Boeing Company. Adjacent uplands typically associated with parking facilities and other industrial support uses.

5n. Describe how the adjacent properties are currently used. [help]

Commercial property of The Boeing Company used for general business.

Insurance Auto Auctions used for the collection and auction of salvaged vehicles.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

Industrial buildings and parking areas with typical utilities.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

The project is located off of East Marginal Way in Tukwila, WA. Site access is controlled and requires coordination with The Boeing Company. From USACE Seattle offices, take East Marginal Way south to Boeing properties.

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

The Riverbank Refurbishment Project (Project) comprises riverbank refurbishment along the Lower Duwamish Waterway frontage at the Developmental Center (including Slip 6) (DC) and Thompson sites. This reach of the Lower Duwamish Waterway is located approximately 5 miles upstream and south of Elliot Bay. The Thompson Site (Area 1) is about 3,000 feet south of South Park Bridge and about 2,000 feet north of Slip 6. The Developmental Center comprises Slip 6 (Area 2) in the North and the riverbank on either side of the North Oxbow Bridge (Areas 3 and 4). The scope of work for each of the areas proposed are as follows:

Area 1 (Thompson Site)

The Thompson Site consists of approximately 340 feet of at-risk riverbank with fine-grained low-sloping intertidal beach that abuts an eroding and degrading timber pile wall. The existing timber pile wall is critically holding up the toe of the bank and the upper bank has erosional areas with 4- to 6-foot high vertical scarps. These erosional processes have led to some sloughing of the paved area and to the perimeter fence leaning toward the river at the top of the bank.

The scope of work is as follows:

- Removal of the existing timber pile wall at the toe of the slope.
- Removal of the invasive species vegetation above the existing wall.
- Regrade riverbank at a 2H:1V slope faced with riprap in place of the existing timber pile wall. Riprap to be keyed in at the toe of existing wall and extended up to the OHWM. By removing the existing vertical timber pile wall and replacing with sloped riprap armoring, intertidal surface area will be gained.
- Log structures for habitat incorporated within the riprap slope.
- A natural coarse sediment mix to be placed within the interstitial spaces of the riprap.
- Installation of a sheet pile wall upland of the OHWM.
- Extension of the stormwater outfall on the south end of the area.
- Replacement of adjacent asphalt pavement, curbing, fencing and pavement re-striping.

Area 2 (Developmental Center Slip 6)

At the head of Slip 6, located on the north end of the DC property, a 30-foot long section of bank had eroded and resulted in an over-steepened bank and existing vegetation being undercut with root structures exposed. Slip 6 is located away from wave and flow processes, and therefore more likely to experience stability concerns from groundwater seeping through the historic channel geometry, overland flow down the banks, weak soils from historic backfill material and scour resulting from vessel propeller wash.

The scope of work for this area is as follows:

- Installation of anchored log structures aligned horizontally along the shoreline (just below OHWM)
- Placement of riprap at a 2H:1V at the base of the logs to provide a stable platform.
- A natural coarse sediment mix to be placed within the interstitial spaces of the riprap.
- Placement of small diameter angular rock behind log structures to provide drainage behind logs.
- Above log structures (and above OHWM), installation of vegetated coir lifts incorporated with live willow stakes and other vegetation.

Area 3 (Developmental Center West)

Area 3 is a 900-foot long reach on the right bank of the Lower Duwamish Waterway starting immediately downstream of the Oxbow Bridge. The bank is generally made up of a steep upper bank covered with established vegetation (blackberry and ivy). A layer of angular rock, concrete slabs and rubble is observed mid-bank along the majority of the shoreline. Immediately downstream of the Oxbow Bridge, the steep bank extends into deep scour holes formed by the outside bend of the Lower Duwamish Waterway. The river reach within Area 3 transitions into the dredged and more tidally influenced waterway, where the lower bank has a fine-grained low sloping intertidal bench. There are locations along the facility boundary with cracking and sloughing and even slumping pavement parallel to the shoreline. Fence subsidence and leaning was observed in several places along the edge of the facility pavement.

Within Area 3, there are four timber pile dikes (training walls) that are oriented obliquely to the shoreline. Through recent assessment, a number of the timber piles appear to be missing or have decayed to a point

that replacement is recommended. The timber pile dikes maintain the river thalweg (deepest channel path) associated with higher velocities and shear stresses located immediately off the end of these structures, and thereby protect the bank from river scour. Erosion along the lower bank and toe through this reach has remained unaffected where timber pile dikes are present.

In addition, there are several concrete dock structures that are located along the top of the bank and extend out over the water on piles. Erosion of fine-grained sediment underneath these structures and undercutting of vegetation near the upper bank were noted.

The scope of work for this area includes:

- Removal of two pile supported range track docks including the removal of the superstructure, concrete decking, piles and portion of crane rails.
- Removal of the invasive species vegetation above the existing wall.
- Removal of concrete slabs and rubble
- Placement of approximately 900 lineal feet (LF) of riprap revetment at a 2H:1V slope to stabilize bank.
- Log structures for habitat to be incorporated within the riprap slope.
- A natural coarse sediment mix to be placed within the interstitial spaces of the riprap.
- Establishment of vegetation between top of riprap and parking area.
- Extension of the approximately seven stormwater outfalls, as necessary for riprap placement.
- Repair the four timber pile dikes along the project shoreline be replacing the damaged piles (approximately 17 piles).
- Replacement of adjacent asphalt pavement, curbing, fencing and pavement re-striping.

Area 4 (Developmental Center East)

Area 4 is a 210-foot long reach on the right bank of the Lower Duwamish Waterway starting immediately upstream of the Oxbow Bridge to the 102nd Street Bridge. The bank is generally composed of a fine-grained intertidal bench scattered with irregular angular rock and concrete rubble. The lower bank transitions into the upper bank near the OHWM and which has a steeper slope (greater than 2H:1V) that is covered with established vegetation (red alder, rushes, and blackberry). Upslope of the upper bank is a covered walking path setback 10 to 20-feet from the top of bank. Within Area 4, the lower intertidal bench was noted as having scour that appears to be resulting from either hyporheic exchange or groundwater seepage from the bank. Review of historical aerial photographs identify that this area was originally a relic drainage channel that was backfilled for development.

Within Area 4, there are three timber pile dikes oriented obliquely to the shoreline. Through recent assessment, some timber piles appear to be missing or have decayed to a point that replacement is recommended. The timber pile dikes maintain the river thalweg (deepest channel path) associated with higher velocities and shear stresses located immediately off the end of these structures, and thereby protect the bank from river scour.

The scope of work for this area includes:

- Removal of concrete slabs and rubble
- Installation of anchored log structures aligned horizontally along the shoreline (just below OHWM) in two isolated locations where scour is most prevalent.
- Placement of riprap at a 2H:1V at the base of the logs to provide a stable platform.
- A natural coarse sediment mix to be placed within the interstitial spaces of the riprap.
- Placement of small diameter angular rock behind log structures to provide drainage behind logs.
- Above log structures and above OHWM installation of vegetated coir lifts incorporated with live willows stakes and other vegetation.
- Repair the three timber pile dikes along the project shoreline by replacing the damaged piles (approximately 11 piles).

6b. Describe the purpose of the project and why you want or need to perform it. [help]

The purpose of the project is to stabilize eroding shorelines. The Lower Duwamish Waterway is an industrial setting, and much of the bank stabilization infrastructure is aging and has fallen into a state of disrepair. Boeing is concerned that the river bank erosion, subsidence, and loss of river bank materials has led to potentially unstable bank conditions that threaten the integrity of existing site facilities and infrastructure.

6c. Indicate the project category. (Check all that apply) [help]

☒ Commercial ☐ Residential ☐ Institutional ☐ Transportation ☐ Recreational

☒ Maintenance ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☐ Culvert	☐ Float	☒ Retaining Wall (upland)
☒ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☐ Road
☐ Boat House	☒ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☐ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☒ Outfall Structure	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☐ Channel Modification	☐ Fishway	☐ Raft	

☒ Other:

Removal of existing intertidally located structures and debris including: concrete rubble, two range track structures at DC, and a creosote-treated timber bulkhead at Thompson.

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

Bank Stabilization – Excavation, filter rock placement, riprap, and log structure placement are planned to be constructed from both onshore and from a barge. Onshore construction is anticipated to consist of: excavators for excavation and placement of material, dump trucks for hauling material on and off site, and front loaders for movement of material from stockpiles to excavators. Stockpiled materials will be located in designated upland areas with appropriate erosion control measures. Barge construction is anticipated to consist of: barge mounted clam-shell bucket excavator for excavation and placement of material and stockpiled material located on a barge. It is anticipated that fine grading will be required with onshore equipment. In the area east of the Oxbow Bridge, there is no onshore access and small excavation equipment may be offloaded from a barge for final placement of rock. A turbidity curtain is planned to be placed surrounding the work area. Bank stabilization work will occur in the Lower Duwamish Waterway within the 100-year floodplain. It is anticipated that work will be coordinated with low tides so as to construct above tide levels as much as practicable.

Retaining Wall – A sheet pile wall is proposed to be constructed along the Thompson Site (Area 1) above the OHWM. The sheet pile wall is anticipated to be built by heavy construction equipment mobilized from the upland side of the Lower Duwamish Waterway. Materials will be stockpiled in designated upland areas.

Outfall Structures – As part of the riprap revetment placement, there will be nine storm drainage pipes that will require extension for several feet so that the outlet is exposed past the new riprap. Excavation and backfill placement will be part of the bank stabilization work as previously discussed. Placement of the pipe will require construction equipment, such as an excavator, to lower the pipe in place.

Pile Dikes – The piles will be dislodged with a vibratory hammer, or pulled with heavy equipment (such as an excavator) when possible, and will not be intentionally broken by twisting or bending. The piles will be removed in a single, slow, and continuous motion in order to minimize sediment disturbance and turbidity in the water column. If a pile breaks above or below the mudline, it will be cut or pushed in the sediment consistent with agency-approved BMPs. Any cut or broken piles will be marked with GPS coordinates and provided to the regulatory agencies and Boeing to document any piles left in place. Removed piles, stubs, and associated sediments (if any) will be contained on a barge or upland. If piles are placed directly on the barge and not in a container, the storage area will consist of a row of hay or straw bales, filter fabric, or similar material placed around the perimeter of the barge. The Contractor will dispose of all creosote-treated material, pile stubs, and associated sediments (if any) in a landfill approved to accept those types of materials. Piles will be installed with a vibratory hammer to minimize the effects of underwater noise on ESA-listed species. A containment boom will surround the work area to contain and collect any floating debris and sheen. Any debris will be retrieved and disposed of properly.

Other - Removal of existing intertidally-located structures and debris including concrete rubble, two range track structures at DC, and a creosote treated timber bulkhead at Thompson. These items will typically be removed using an excavator from either a barge or from onshore. Material will be placed in either designated upland areas or on a barge for later disposal.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start Date: June 1, 2020 End Date: August 31, 2020 ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

$1,300,000 (Thompson) plus $2,000,000 (DC) = $3,300,000 Total

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☐ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☐ Not applicable

7b. Will the project impact wetlands? [help]

☐ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☐ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☐ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☐ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☐ No ☐ Don't know

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

Site reconnaissance and desktop studies were completed at project initiation in order to prioritize areas with potentially unstable bank conditions. Through this process, only the most critical areas were identified for stabilization, thereby avoiding adverse impacts to the aquatic environment wherever possible.

Where stabilization is considered critical, the footprint required to refurbish the riverbank has been minimized to the extent practicable. In addition, the following has been incorporated into the design to minimize impacts to the aquatic environment:

- Removal of existing intertidally- located structures and debris including concrete rubble, two range track structures at DC, and an existing timber pile wall at Thompson Ste.
- With removal of the existing timber pile wall and replacing with sloped riprap armoring, approximately 900 sf of intertidal zone habitat surface area will be gained at the Thompson Site.
- Removal of the invasive species vegetation at the Thompson Site and DC.
- A bio-engineered bank, with coir fabric and plantings installed above anchored log structures aligned horizontally along the shoreline (just below OHWM), was incorporated into the design in place of riprap armor where possible: in Area 2 (DC Slip 6) and Area 4 (DC East).
- Anchored large woody debris (LWD) will be incorporated in most riprap armor areas to provide fish habitat.
- Plantings will be incorporated above the riprap armor in Area 3 (DC West).
- A habitat bench will be incorporated into the riprap armor in Area 3 (DC West).
- A natural coarse sediment mix will be placed within the interstitial spaces of the riprap in all riprap armor areas.
- To extent practicable, construction will be performed during periods of low tide when work can be performed out of the water.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☐ Yes ☒ No ☐ Don't know

Project mitigation requirements are to be determined.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Area 1 (Thompson Site)					
Excavation	Duwamish Waterway	Waterward of OHWM	Permanent	620 cy	3,160 sf
Fill (rock material)				310 cy	
Stormwater Outfall Extension				N.A.	
Area 2 (DC Slip 6)					
Excavation	Duwamish Waterway	Waterward of OHWM	Permanent	0 cy	1,190 sf
Fill (rock material)				110 cy	
Area 3 (DC West)					
Excavation	Duwamish Waterway	Waterward of OHWM	Permanent	1,630 cy	36,900 sf
Fill (rock material)				6,300 cy	
Pile removal and replacement				N.A.	
Stormwater Outfall Extension				N.A.	
Range track dock removal				N.A.	
Area 4 (DC East)					
Excavation	Duwamish Waterway	Waterward of OHWM	Permanent	50 cy	2,940 sf
Fill (rock material)				1,100 cy	
Pile removal and replacement				N.A.	
Stormwater Outfall Extension				N.A.	
Project Total					
Excavation	Duwamish Waterway	Waterward of OHWM	Permanent	2,300 cy	44,190 sf
Fill (rock material)				7,820 cy	

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

Materials placed within the Lower Duwamish Waterway will include natural log piles, geotextile filter fabric, gravel filter rock, and riprap. A total volume of filter rock, riprap and natural coarse sediment is estimated to be approximately 7,820 cy. Log and rock materials will be imported from offsite. All materials placed within the waterway will be installed within the turbidity curtain. Log piles will be installed using a vibratory hammer. Installation of geotextile and rock materials will be placed from either the landward top of bank or from a barge anchored within the Lower Duwamish Waterway.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

Shoreline materials excavated will be regraded on-site as appropriate or disposed of offsite at approved landfill (approximately 2,300 cy). The removal of material is anticipated to be completed by an excavator with either a standard or clam shell bucket, as conditions dictate. Metal, concrete or other debris identified and encountered on the bank will be removed and properly disposed of off-site.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: http://www.ecy.wa.gov/programs/wq/303d/.

☒ Yes ☐ No

Temperature: 17.5°C (63.5°F)

Supplemental spawning: None

Dissolved Oxygen (DO): 6.5 mg/L

pH: pH shall be within the range of 6.5 to 8.5, with a human-caused variation within the above range of less than 0.5 units

Turbidity: 10 NTU over background when the background is 50 NTU or less; or A 20 percent increase in turbidity when the background turbidity is more than 50 NTU

Bacteria: Fecal coliform organism levels must not exceed a geometric mean value of 200 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 400 colonies /100 mL.

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

HUC 17110013

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to http://www.ecy.wa.gov/water/wria/index.html to find the WRIA #.

WRIA 9

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to http://www.ecy.wa.gov/programs/wq/swqs/criteria.html for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: http://www.ecy.wa.gov/programs/sea/sma/laws_rules/173-26/211_designations.html.

☒ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☐ Other:

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☒ Shoreline ☐ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: 2016 King County Surface Water Design Manual

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☒ Yes ☐ No

Site is adjacent to and within the Lower Duwamish Superfund Site.

9j. If you know what the property was used for in the past, describe below. [help]

Agriculture prior to The Boeing Company

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☐ Yes ☒ No

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

Species Name			ESA Listing Status	Critical Habitat	Critical Habitat in Action Area
Common Name	Scientific Name	ESU or DPS*			
Chinook Salmon	*(Oncorhynchus tshawytscha)*	Puget Sound ESU	Threatened	Designated	Yes
Steelhead	*(Oncorhynchus mykiss)*	Puget Sound DPS	Threatened	Designated	Yes
Bull Trout	*(Salvelinus confluentus)*	Coastal Puget Sound DPS	Threatened	Designated	Yes
Marbled Murrelet	*Brachyramphus marmoratus*	CA/WA/OR DPS	Threatened	Designated	No

USFWS identifies additional federally listed species that occur in King County, including: North American wolverine (Gulo gulo luscus), Streaked horned lark (Eremophila alpestris strigata), and Yellow-billed cuckoo (Coccyzus americanus). There is no suitable habitat for these species in the urban area along the Lower Duwamish Waterway. The proposed project will have no effect on these species.

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

The following species on the WDFW Priority Habitats and Species List occur in the vicinity of the project but are not expected to be affected by the proposed work.

- Duwamish River/Waterway Bull Trout/Dolly Varden (Salvinus confluentus/S. malma)
- Duwamish River/Waterway Chinook (Oncorhynchus tshawytscha)
- Duwamish River/Waterway Chum (Oncohynchus keta)
- Duwamish River/Waterway Coho (Oncorhynchus kisutch)
- Duwamish River/Waterway Pink Salmon (Oncorhynchus gorbuscha)
- Duwamish River/Waterway Cutthroat (Oncorhynchus clarki)
- Duwamish River/Waterway Sockeye (Oncorhynchus nerka)
- Duwamish River/Waterway Steelhead (Oncorhynchus mykiss)
- Western Pond Turtle (Actinemys marmorata)

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to www.ecy.wa.gov/programs/sea/sepa/e-review.html.

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☐ A SEPA determination is pending with _____ (lead agency). The expected decision date is _____.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?

_____

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☐ Substantial Development ☐ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain): _____

Other City/County permits:

☐ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Washington Department of Natural Resources:

☐ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

FEDERAL GOVERNMENT

United States Department of the Army permits (U.S. Army Corps of Engineers):

☐ Section 404 (discharges into waters of the U.S.) ☒ Section 10 (work in navigable waters)

United States Coast Guard permits:

☐ General Bridge Act Permit ☐ Private Aids to Navigation (for non-bridge projects)

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. MP (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. MP (initial)

Martin Probst	Martin Probst	6/21/2019
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Scott Stoneman, Golder	Scott Stoneman	6/21/2019
Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [help]

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

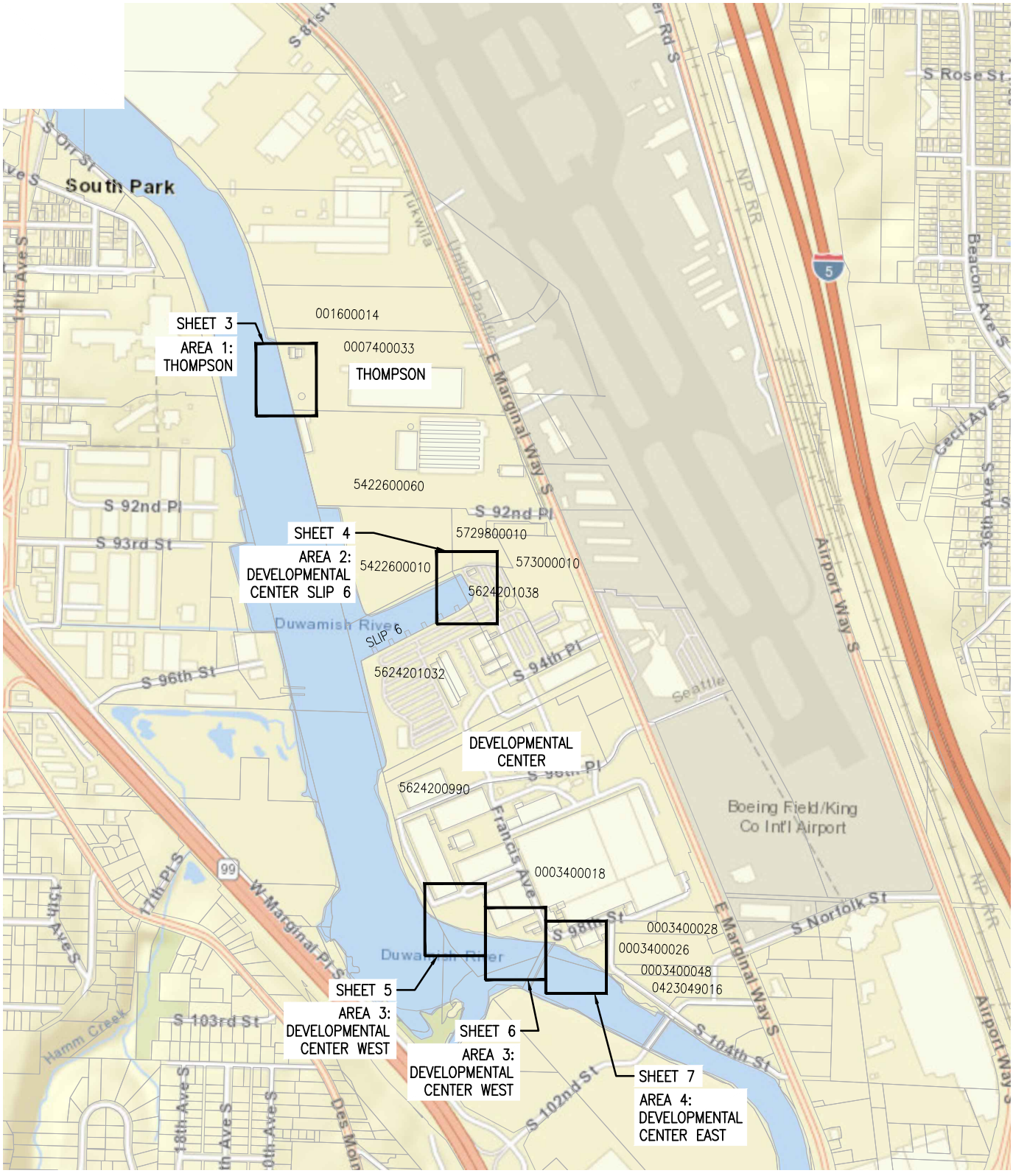
I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-011 rev. 07/2017

VICINITY MAP



REFERENCE:

APPLICANT: The Boeing Company

ADJACENT PROPERTY OWNERS:
1. Container Properties / 5422600010 (N of Slip 6)
2. Ins. Auto Auctions / 5422600060 (S of Thompson)
3. Other adjacent parcels are owned by Boeing

LOCATION: E. Marginal Way S.
Tukwila, Washington

LAT/LONG: 47.51 / -122.30
SEC: 4 T: 23N R: 4E

SHEET: 1 OF 10 DATE: 9/27/2019

PROPOSED PROJECT:
Developmental Center and Thompson Riverbank Refurbishment

IN: Duwamish River
NEAR: Tukwila
COUNTY: King
STATE: Washington

LEGEND AND NOTES

LEGEND

- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN CLEAN–OUT
- EXISTING CATCH BASIN
- EXISTING WATER VALVE
- DHA SURVEY CONTROL
- EXISTING LIGHT POLE
- EXISTING JUNCTION BOX
- EXISTING POWER MANHOLE
- EXISTING MONITOR WELL
- EXISTING FIRE HYDRANT
- EXISTING CONIFER TREE
- EXISTING DECIDUOUS TREE
- PROPOSED TESC INLET PROTECTION
- PROPOSED LARGE WOODY DEBRIS (LWD) / LOGS
- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- BASE FLOOD ELEVATION (100–YR) (BFE)
- ORDINARY HIGH WATER MARK (OHWM)
- SHORELINE BUFFER (100–FT OFFSET FROM OHWM)
- MEAN HIGHER HIGH WATER (MHHW)
- MEAN LOWER LOW WATER (MLLW)
- EXISTING TIMBER PILE DIKE
- EXISTING EDGE OF ASPHALT
- EXISTING GUARDRAIL
- EXISTING FENCE LINE
- PROPOSED FENCE LINE
- EXISTING DITCH
- EXISTING CHILLED WATER LINE
- EXISTING DOMESTIC WATER LINE
- EXISTING FIRE WATER LINE
- EXISTING GAS LINE
- EXISTING STORM DRAIN LINE
- EXISTING SANITARY SEWER LINE
- EXISTING UNDERGROUND POWER LINE
- EXISTING UNDERGROUND TELEPHONE LINE
- PROPOSED CLEARING LIMITS
- PROPOSED PROJECT CONSTRUCTION LIMITS OR TEMPORARY FENCE
- PROPOSED SILT FENCE
- PROPOSED TURBIDITY CURTAIN
- PROPOSED PERIMETER PROTECTION
- PROPOSED SAWCUT LINE
- PROPOSED NEW PAVEMENT

SURVEY NOTES:

TOPOGRAPHIC MAPPING:
THE TOPOGRAPHIC SURVEY IS BY DUANE HARTMAN & ASSOCIATES, INC. (DHA) COMPLETED IN JUNE 2017.

HORIZONTAL DATUM:
WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE NAD 83(91)

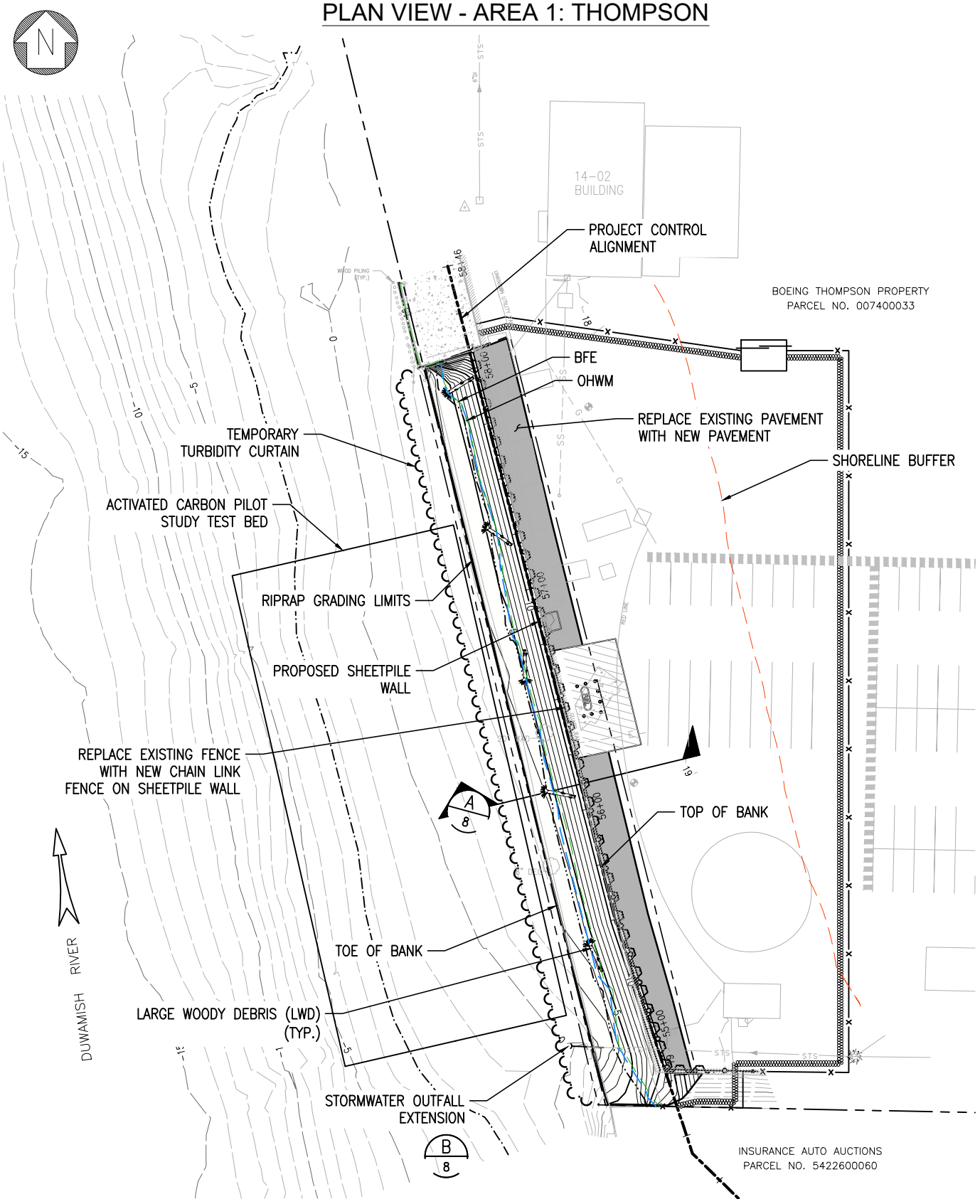
VERTICAL DATUM: NAVD88, US FEET.

VERTICAL DATUM CONVERSION TABLE
NOAA/NOS 8TH AVENUE BENCHMARK

TIDE PLANE	MLLW	NAVD88	NGVD29
Estimated Highest Water	15.0	12.5	9.0
Base Flood El. (100–YR)	14.8	12.3	8.8
Ordinary High Water Mark (Avg. El.)	14.4	10.9	8.4
Mean Higher High Water	11.1	8.6	5.1
Mean High Water	10.2	7.7	4.2
Mean Tide Level	6.45	3.97	0.44
Mean Low Water	2.7	0.2	–3.3
Mean Lower Low Water	0.00	–2.48	–6.01

REFERENCE:
APPLICANT: The Boeing Company
PROPOSED PROJECT: DC and Thompson Riverbank Refurbishment
LOCATION: E. Marginal Way S. Tukwila, Washington
SHEET: 2 OF 10 DATE: 9/27/2019

PLAN VIEW - AREA 1: THOMPSON



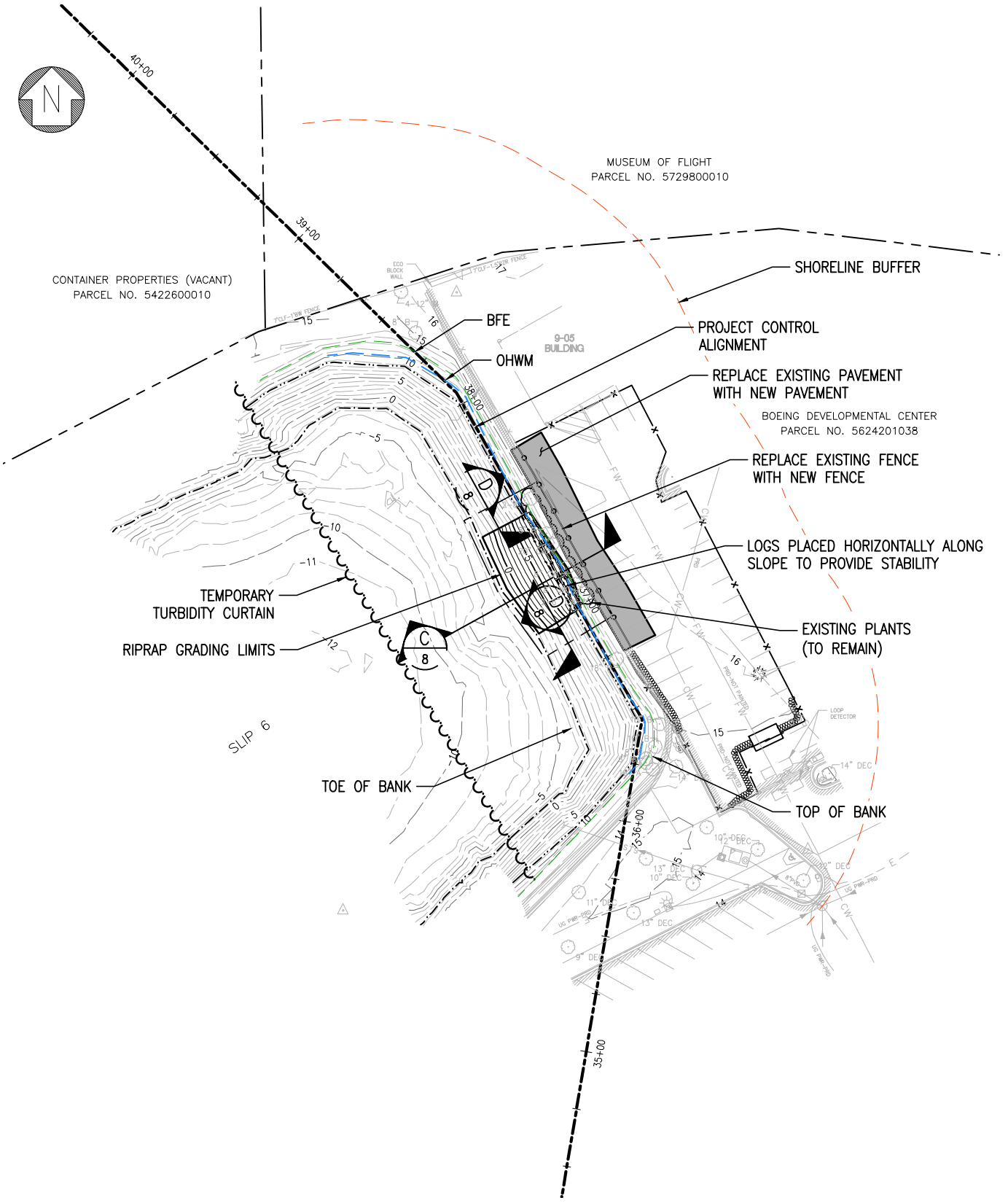
60' 30' 0 60'

SCALE: 1" = 60' (FEET)

REFERENCE:
APPLICANT: The Boeing Company
PROPOSED PROJECT: DC and Thompson Riverbank Refurbishment
LOCATION: E. Marginal Way S. Tukwila, Washington
SHEET: 3 OF 10 DATE: 9/27/2019

Path: \\redmond.golder.gds\data\geomatics\Boeing\DCThompson\99_PROJECTS\1659111017-16617100\17_DCandThompson_Riverbank\02_PRODUCTION\DWG\JARPA\ | File Name: 1659111017_700_002.dwg

PLAN VIEW - AREA 2: DEVELOPMENTAL CENTER SLIP 6



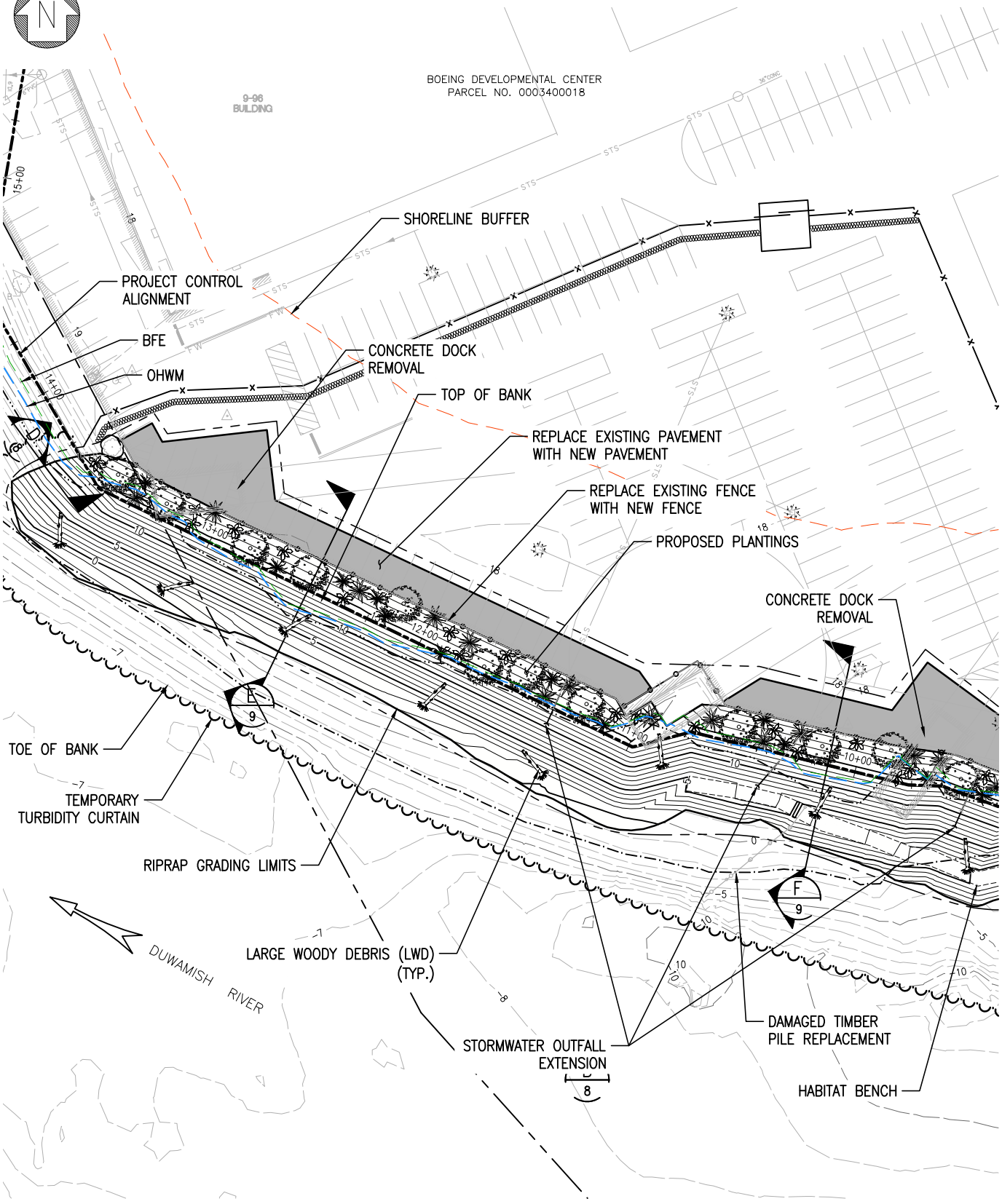
60' 30' 0 60'

SCALE: 1" = 60' (FEET)

REFERENCE:
APPLICANT: The Boeing Company
PROPOSED PROJECT: DC and Thompson Riverbank Refurbishment
LOCATION: E. Marginal Way S. Tukwila, Washington
SHEET: 4 OF 10 DATE: 9/27/2019

Path: \\redmond.golder.gds\data\geomatics\Boeing\DCThompson\99_PROJECTS\1659111017-16617100017_DCandThompson_Riverbank\02_PRODUCTION\DWG\JARPA\ | File Name: 1659111017_700_002.dwg

PLAN VIEW - AREA 3: DEVELOPMENTAL CENTER WEST (1 OF 2)



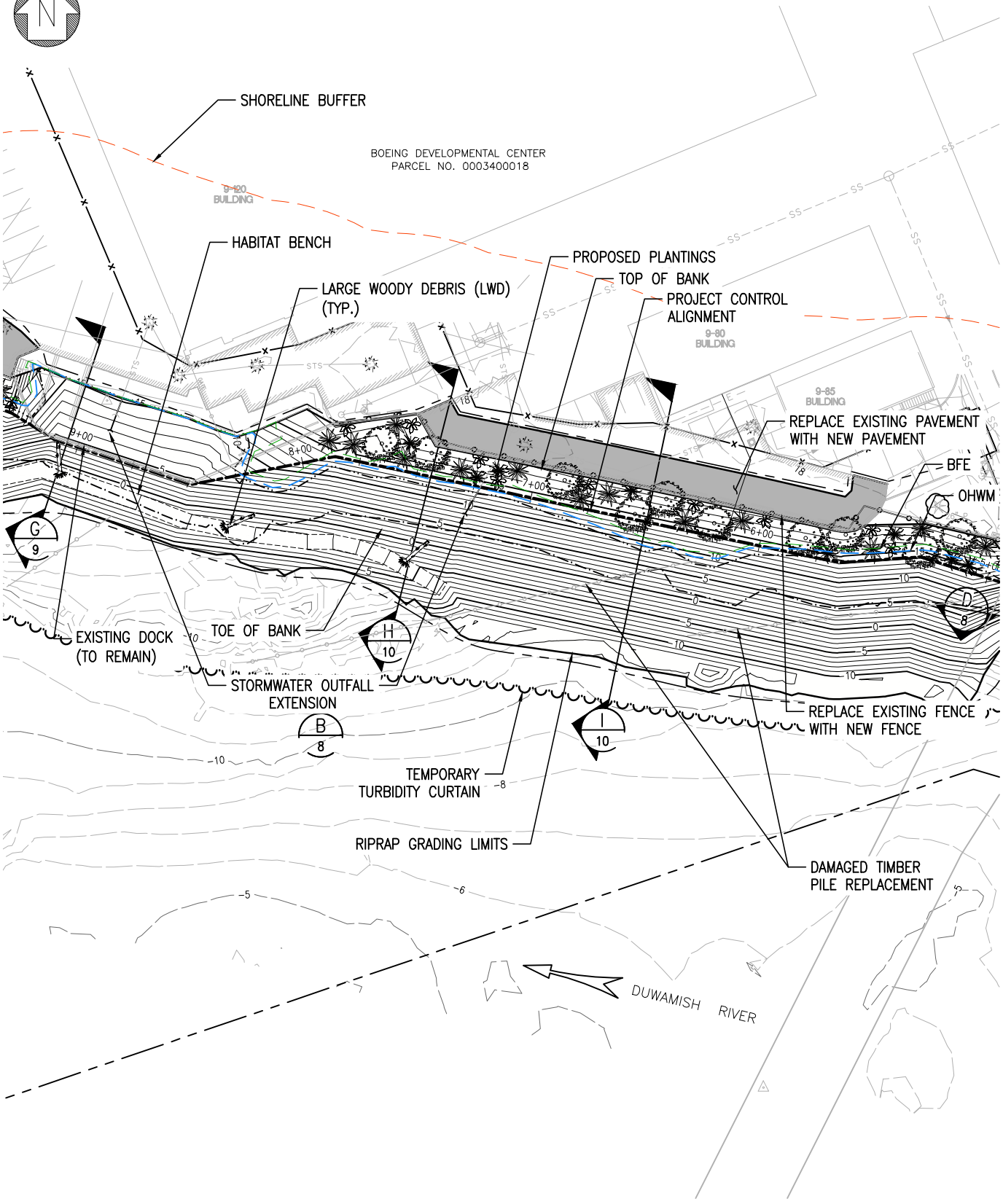
60' 30' 0 60'

SCALE: 1" = 60' (FEET)

REFERENCE:
APPLICANT: The Boeing Company
PROPOSED PROJECT: DC and Thompson Riverbank Refurbishment
LOCATION: E. Marginal Way S. Tukwila, Washington
SHEET: 5 OF 10 DATE: 9/27/2019

Path: \\redmond.golder.gds\data\geomatics\Boeing\DCThompson\99_PROJECTS\1659111017-1661710017_DCandThompson_Riverbank\02_PRODUCTION\DWG\JARPA\ | File Name: 1659111017_700_002.dwg

PLAN VIEW - AREA 3: DEVELOPMENTAL CENTER WEST (2 OF 2)



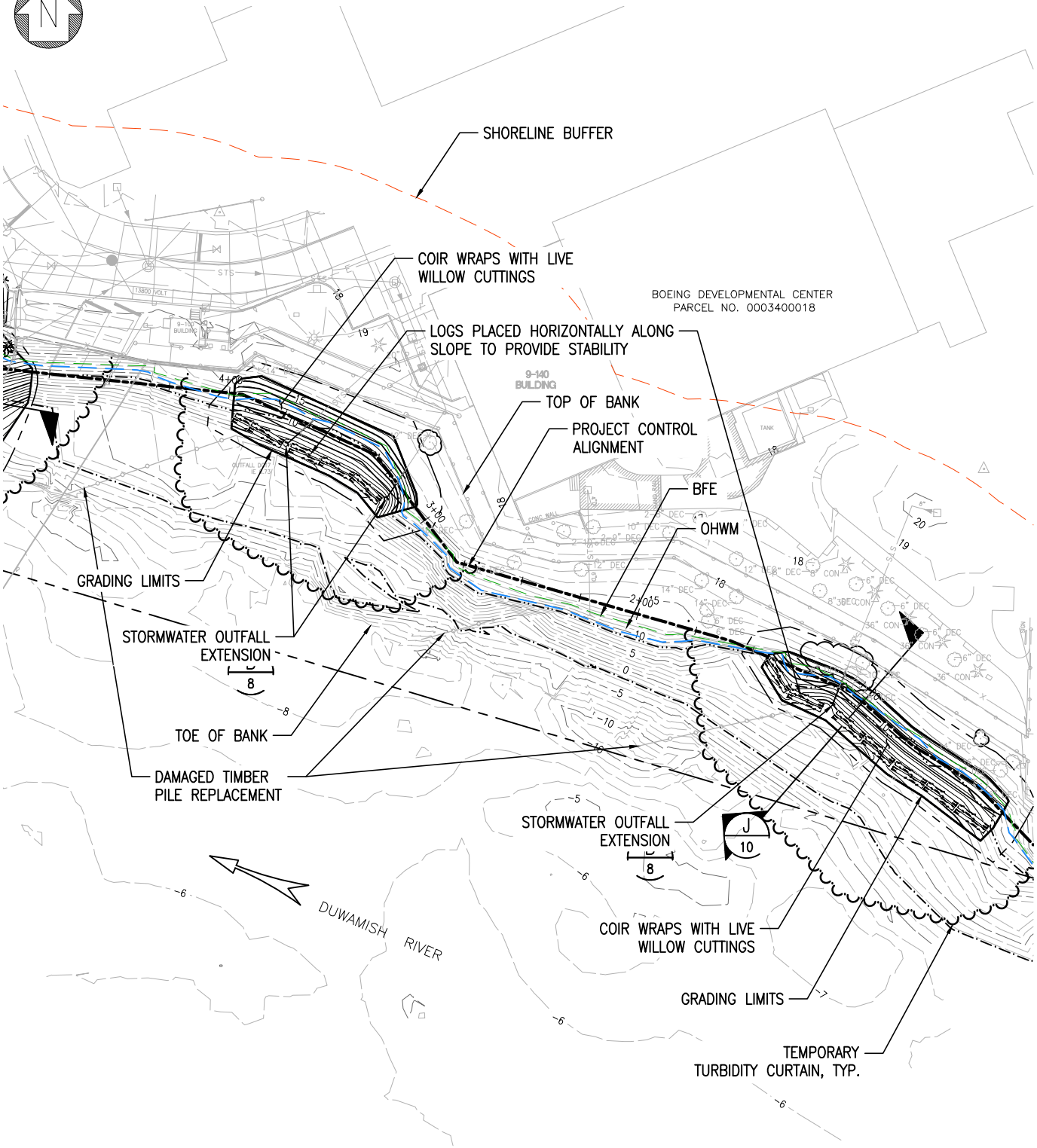
60' 30' 0 60'

SCALE: 1" = 60' (FEET)

REFERENCE:
APPLICANT: The Boeing Company
PROPOSED PROJECT: DC and Thompson Riverbank Refurbishment
LOCATION: E. Marginal Way S. Tukwila, Washington
SHEET: 6 OF 10 DATE: 9/27/2019

Path: \\redmond.golder.gds\data\geomatics\Boeing\DCThompson\99_PROJECTS\1659111017-1661710017_DCandThompson_Riverbank\02_PRODUCTION\DWG\JARPA\ | File Name: 1659111017_700_002.dwg

PLAN VIEW - AREA 4: DEVELOPMENTAL CENTER EAST



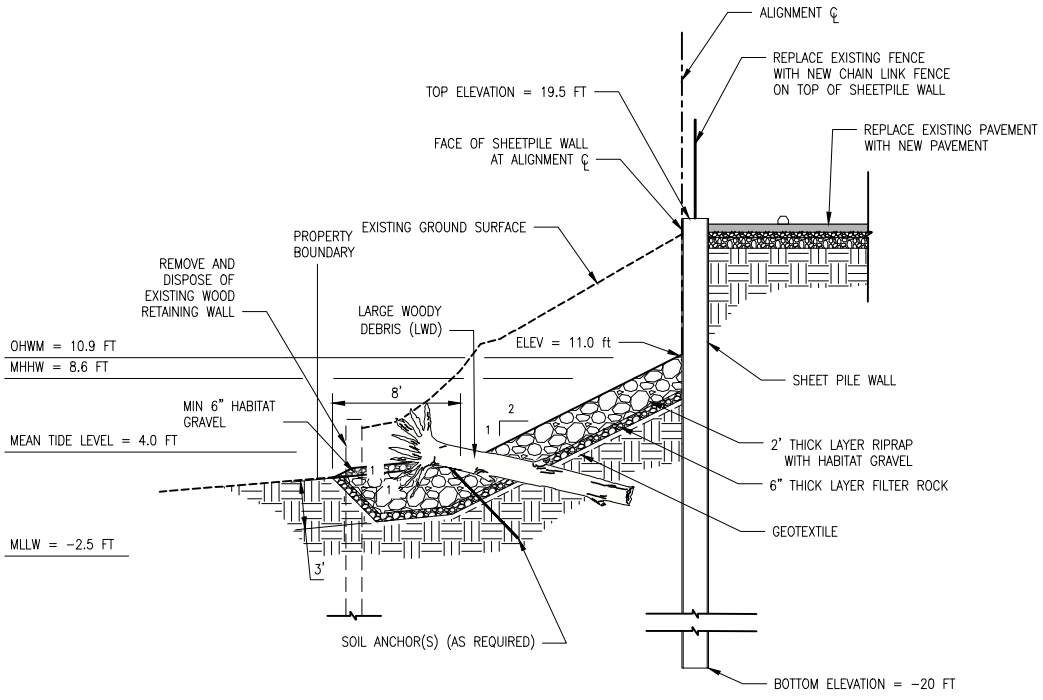
60' 30' 0 60'

SCALE: 1" = 60' (FEET)

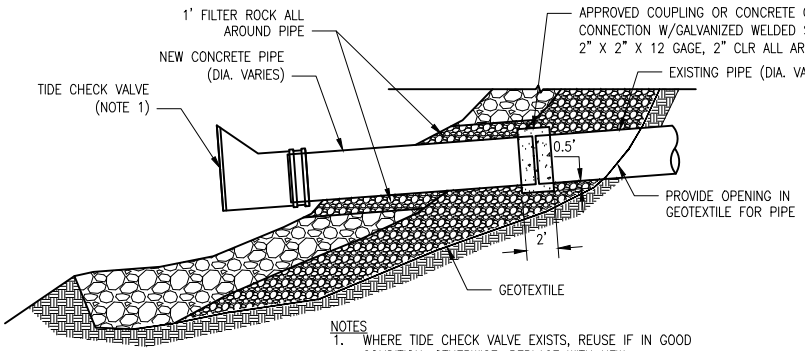
REFERENCE:
APPLICANT: The Boeing Company
PROPOSED PROJECT: DC and Thompson Riverbank Refurbishment
LOCATION: E. Marginal Way S. Tukwila, Washington
SHEET: 7 OF 10 DATE: 9/27/2019

Path: \\redmond.golder.gds\data\geomatics\Boeing\DCThompson\99_PROJECTS\1659111017-166171017_DCandThompson_Riverbank\02_PRODUCTION\DWG\JARPA\ | File Name: 1659111017_700_002.dwg

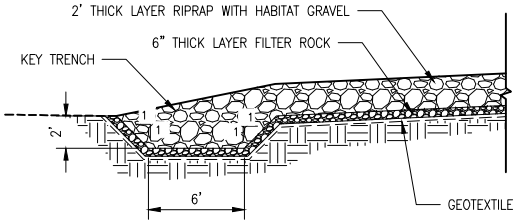
TYPICAL SECTIONS



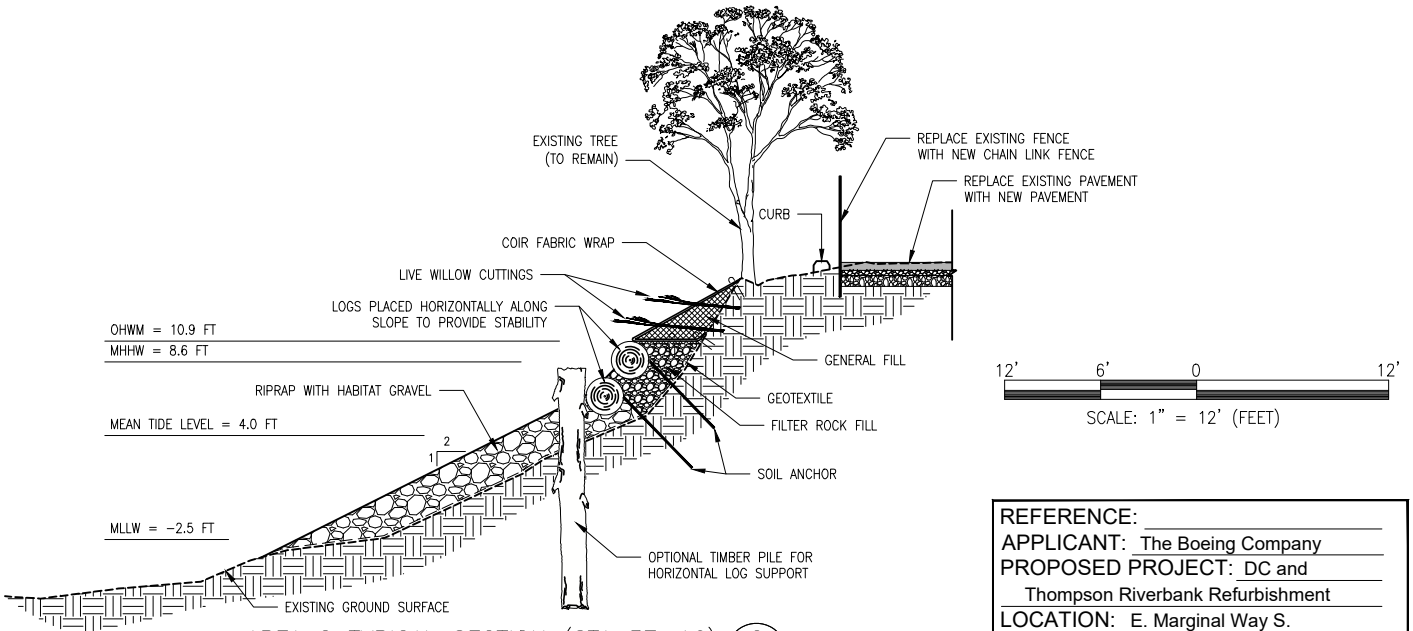
AREA 1 TYPICAL SECTION (STA 56+11) A/3



TYPICAL SECTION (OUTFALL EXTENSION) B/-



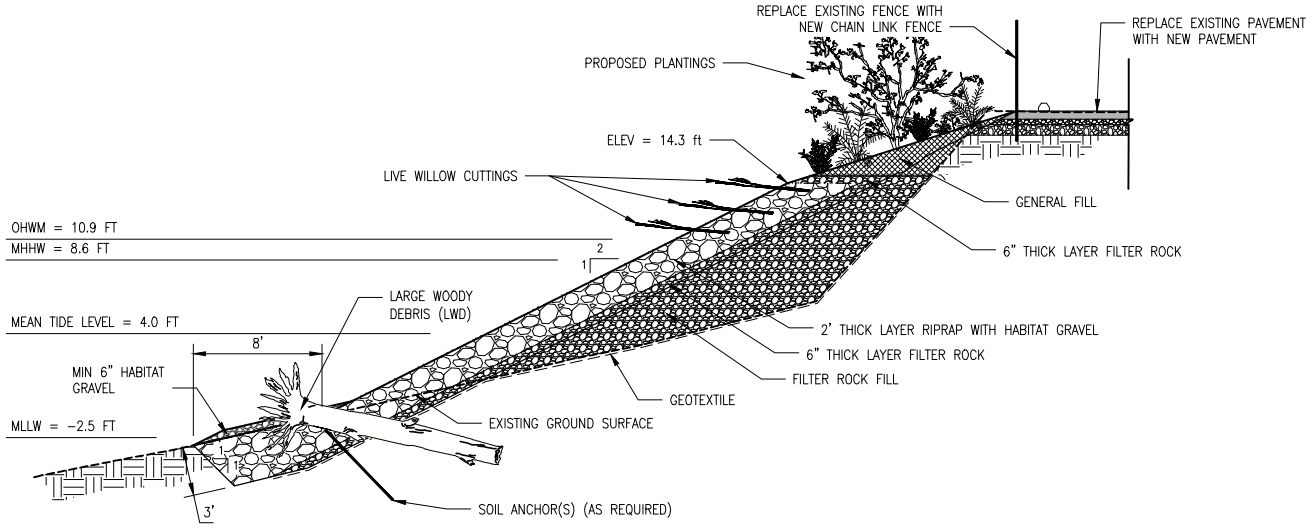
TYPICAL SECTION (END TREATMENT) D/-



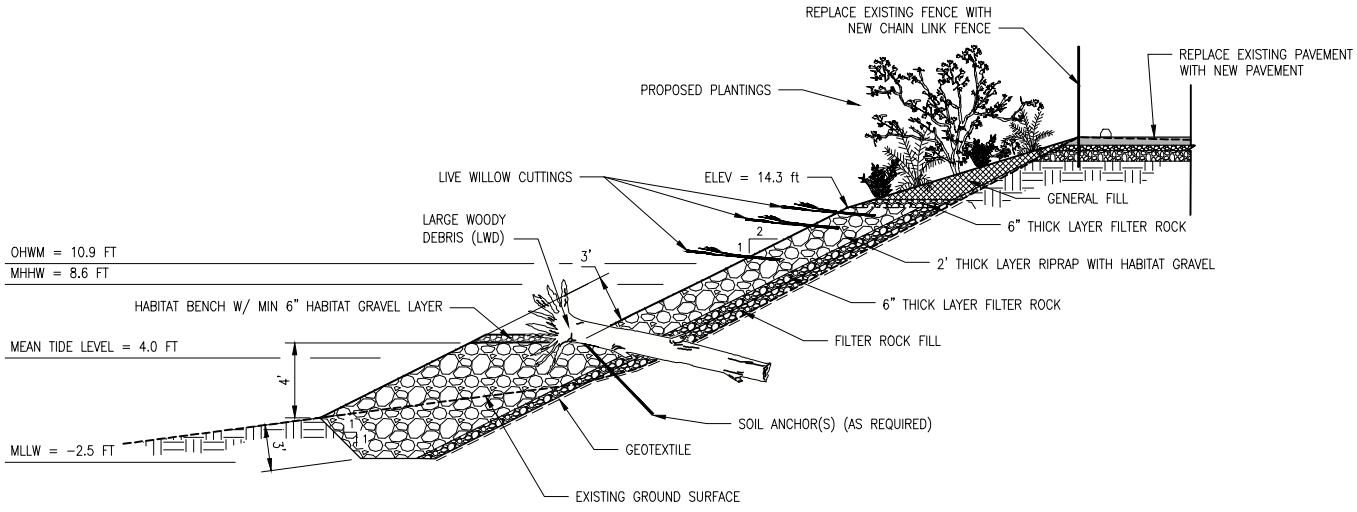
AREA 2 TYPICAL SECTION (STA 37+16) C/4

REFERENCE:	
APPLICANT:	The Boeing Company
PROPOSED PROJECT:	DC and Thompson Riverbank Refurbishment
LOCATION:	E. Marginal Way S. Tukwila, Washington
SHEET: 8 OF 10	DATE: 9/27/2019

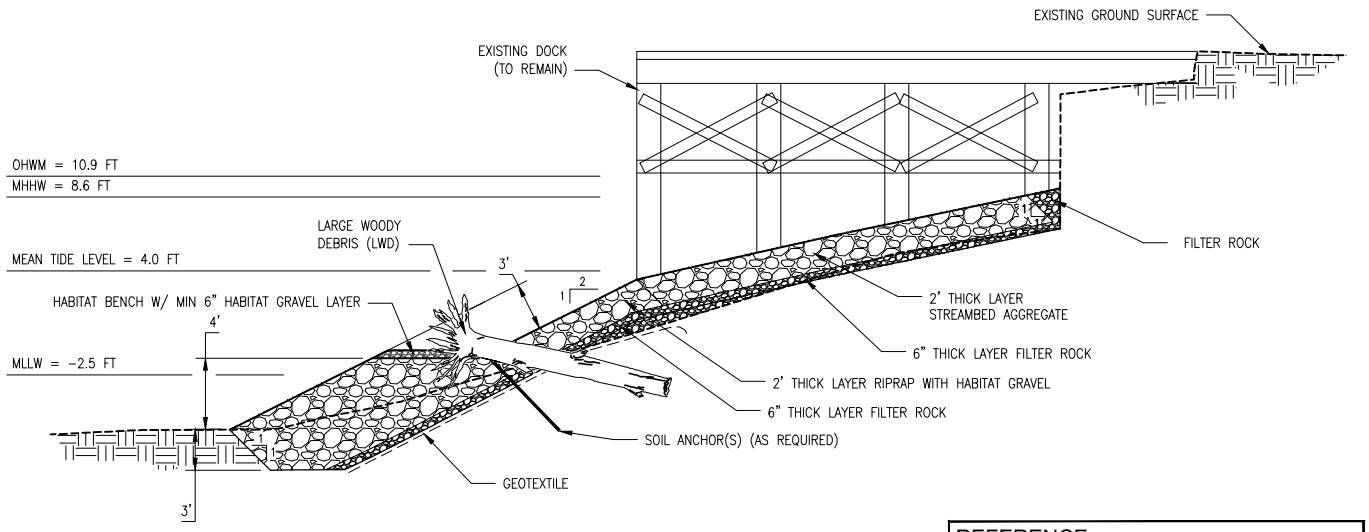
TYPICAL SECTIONS



AREA 3 TYPICAL SECTION (STA 12+53) E/5



AREA 3 TYPICAL SECTION (STA 10+13) F/5



AREA 3 TYPICAL SECTION (STA 9+18) G/6

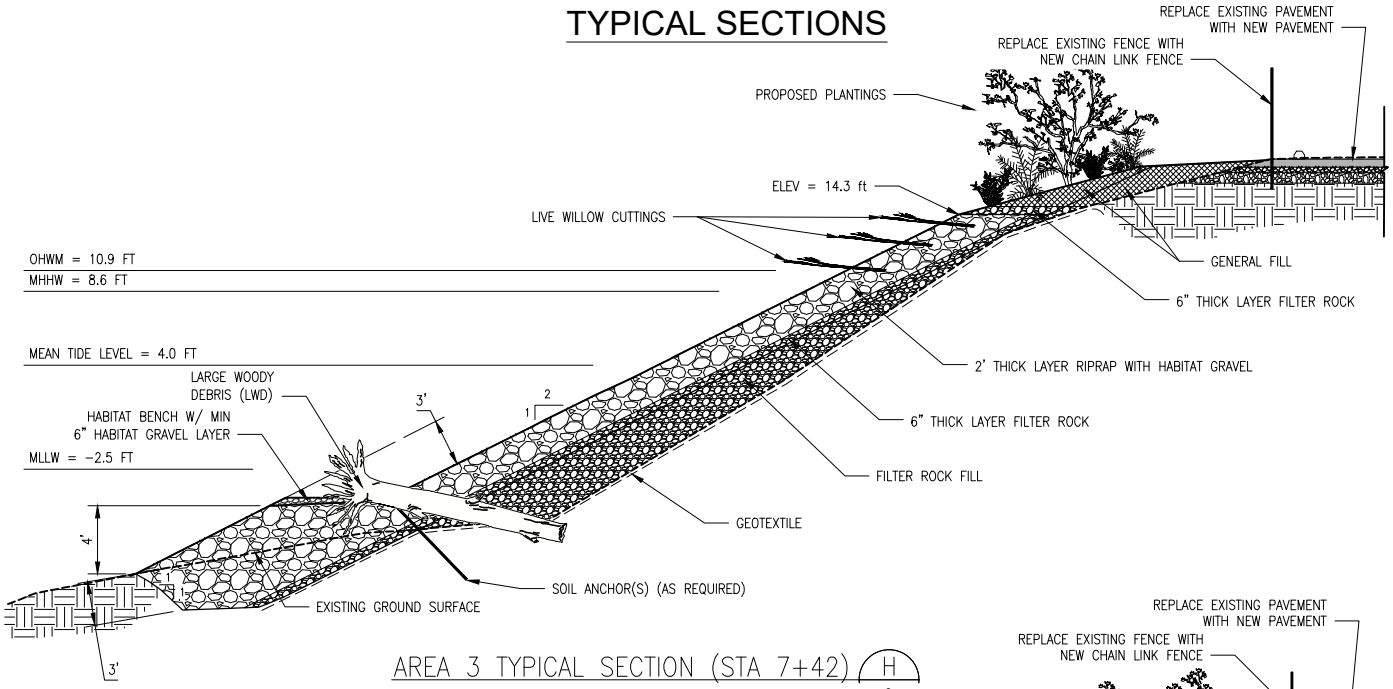
12' 6' 0 12'

SCALE: 1" = 12' (FEET)

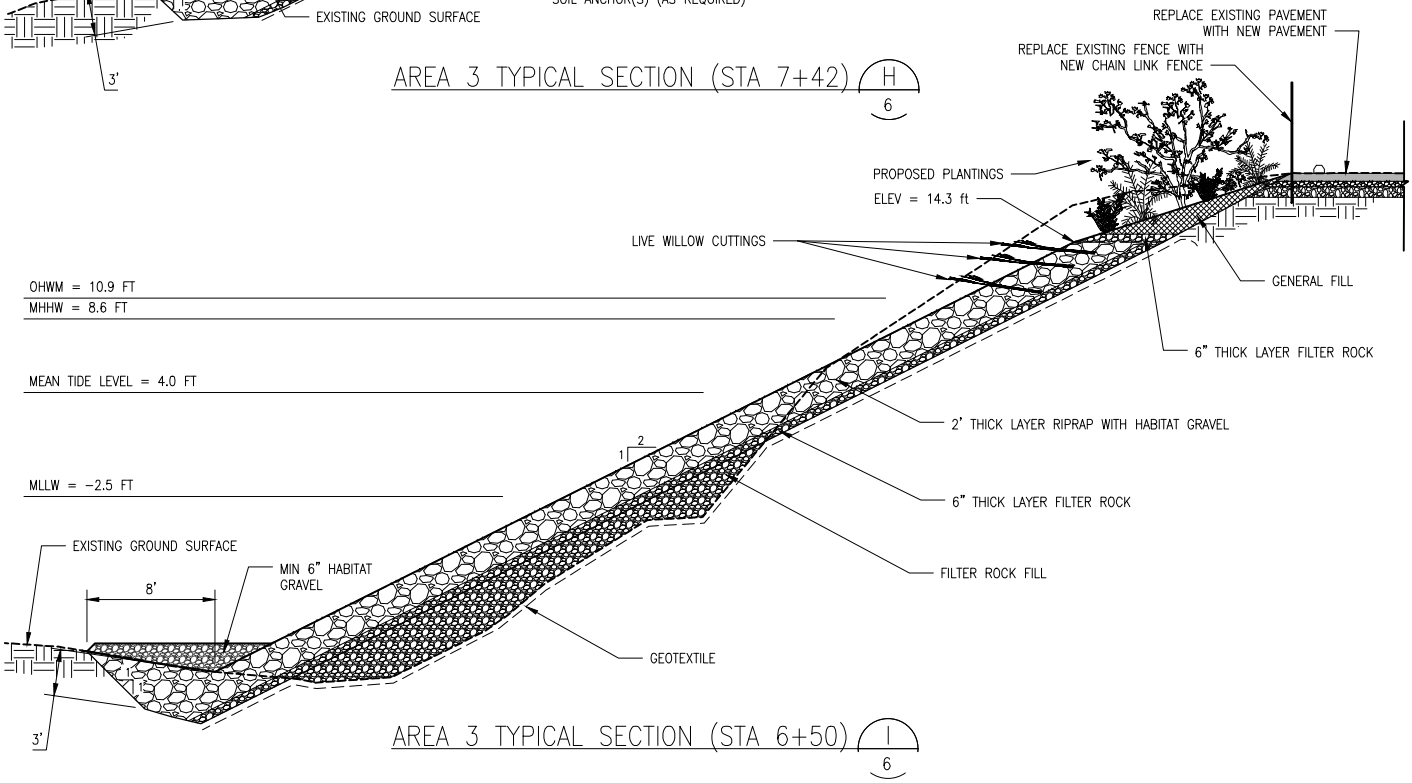
REFERENCE:
APPLICANT: The Boeing Company
PROPOSED PROJECT: DC and Thompson Riverbank Refurbishment
LOCATION: E. Marginal Way S. Tukwila, Washington
SHEET: 9 OF 10 DATE: 9/27/2019

Path: \\redmond.golder.gds\data\geomatics\Boeing\DCThompson\99_PROJECTS\1659111017-16617100017_DCandThompson_Riverbank\02_PRODUCTION\DWG\AJARPA\ | File Name: 1659111017_700_003.dwg

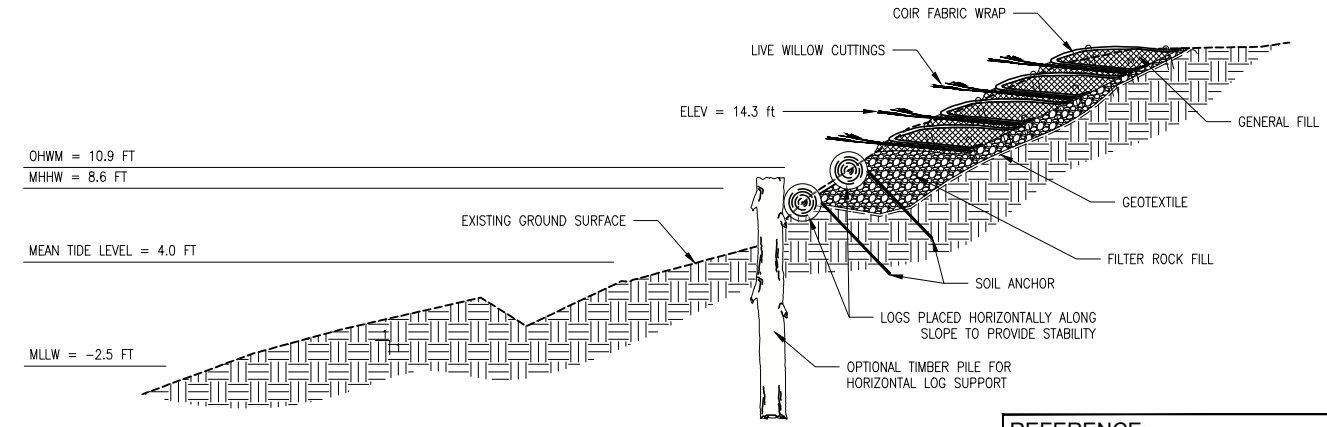
TYPICAL SECTIONS



AREA 3 TYPICAL SECTION (STA 7+42) H/6



AREA 3 TYPICAL SECTION (STA 6+50) I/6



AREA 4 TYPICAL SECTION (STA 0+99) J/7

12' 6' 0 12'

SCALE: 1" = 12' (FEET)

REFERENCE:
APPLICANT: The Boeing Company
PROPOSED PROJECT: DC and Thompson Riverbank Refurbishment
LOCATION: E. Marginal Way S. Tukwila, Washington
SHEET: 10 OF 10 DATE: 9/27/2019